Regional Highlights from

Global Climate Change Impacts in the United States

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Southeast

The annual average temperature in the Southeast has risen 2°F since 1970, with the greatest seasonal increase in the winter months. There has been a 30 percent increase in fall precipitation over most of the region but a decrease in fall precipitation in South Florida. Summer precipitation has decreased over almost the entire region. The percentage of the Southeast in moderate to severe drought increased over the past three decades. There has been an increase in heavy downpours. The power of Atlantic hurricanes has increased since 1970, associated with an increase in sea surface temperature.

Continued warming is projected, with the greatest temperature increases in summer. The number of very hot days is projected to rise at a faster rate than average temperatures. Average annual temperatures are projected to rise 4.5°F under a lower emissions scenario and 9°F under a higher emissions scenario with a 10.5°F increase in summer and a much higher heat index. Sea-level rise is projected to accelerate, increasing coastal inundation and shoreline retreat. The intensity of hurricanes is likely to increase, with higher wind speeds, rainfall intensity, and storm surge height and strength.

A note on the emissions scenarios

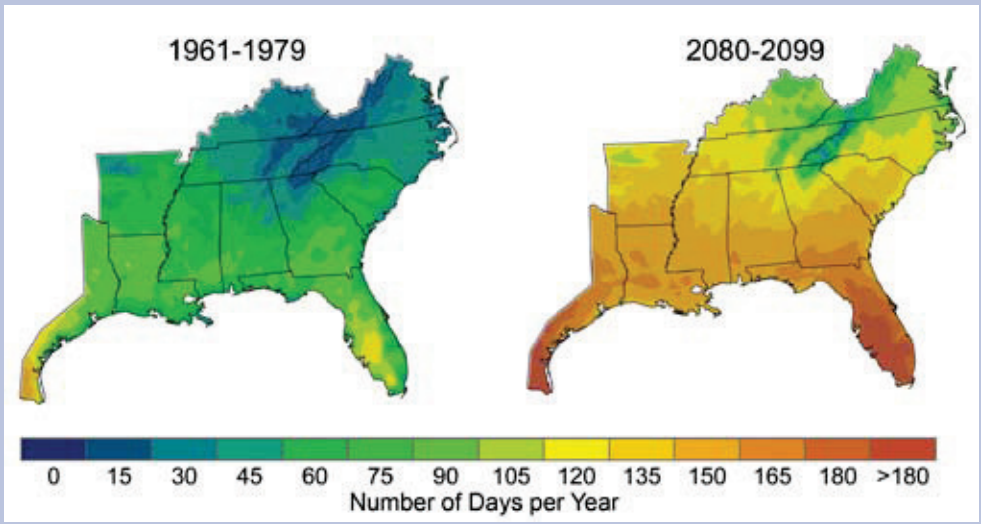
None of the emissions scenarios used in this report include any policies specifically designed to address climate change. All, including the lower emissions scenario, lead to increases in heat-trapping gas emissions for at least the next few decades, though at different rates.

Key Issues

Projected increases in air and water temperatures will cause heat-related stresses for people, plants, and animals.

Effects of increased heat include more heat-related illness; declines in forest growth and agricultural crop production due to the combined effects of heat stress and declining soil moisture; declines in cattle production; increased buckling of pavement and railways; and reduced oxygen levels in streams and lakes, leading to fish kills and declines in aquatic species diversity.

Number of Days per Year with Peak Temperature over 90°F



The number of days per year with peak temperature over 90°F is expected to rise significantly, especially under a higher emissions scenario as shown in the map above. By the end of the century, projections indicate that North Florida will have more than 165 days (nearly six months) per year over 90°F, up from roughly 60 days in the 1960s and 1970s. The increase in very hot days will have consequences for human health, drought, and wildfires.

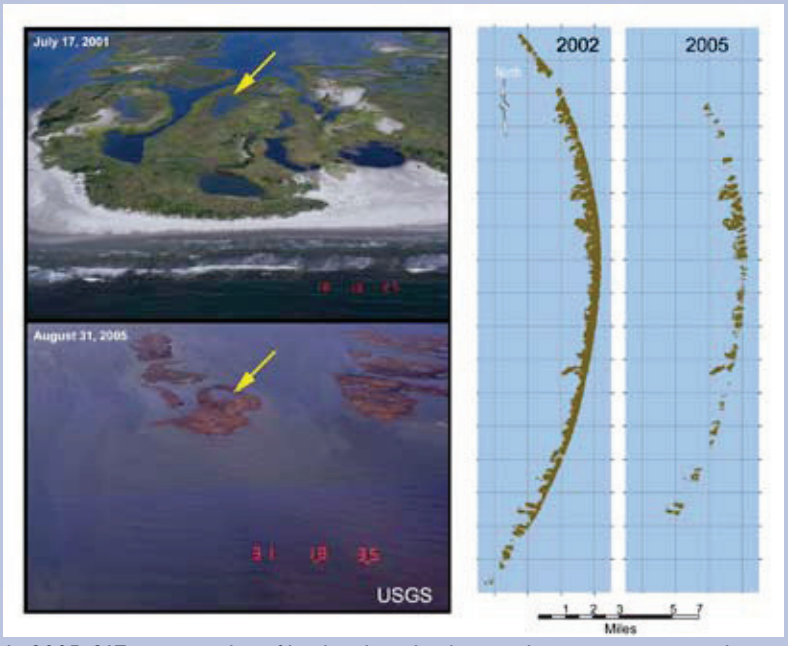
Decreased water availability is very likely to affect the region's economy as well as its natural systems.

Increasing temperatures and longer periods between rainfall events coupled with increased demand for water will result in decreased water availability. The 2007 water shortage in the Atlanta area created serious conflicts between three states, the U.S. Army Corps of Engineers (which operates the dam at Lake Lanier), and the U.S. Fish and Wildlife Service, which is charged with protecting endangered species. Such competition for limited water supplies is expected to continue.

Sea-level rise and the likely increase in hurricane intensity and associated storm surge will be among the most serious consequences of climate change.

Low-lying areas, including some communities, will be inundated more frequently – some permanently – by the advancing sea. Current buildings and infrastructure were not designed to withstand the intensity of the projected storm surge, which would cause catastrophic damage. If sea-level rise increases at an accelerated rate (dependent upon ice sheet response to warming) a large portion of the Southeast coastal zone could be threatened.

Land Lost During 2005 Hurricanes



In 2005, 217 square miles of land and wetlands were lost to open water during hurricanes Rita and Katrina. The photos and maps show the Chandeleur Islands, east of New Orleans, before and after the 2005 hurricanes; 85 percent of the islands' above-water land mass was eliminated.

Ecological thresholds are likely to be crossed throughout the region, causing major disruptions to ecosystems and to the benefits they provide to people.

Ecosystems provide numerous important services that have high economic and cultural value in the Southeast. Climate change may result in abrupt changes to these ecosystems, such as hurricane-induced sudden loss of landforms that serve as storm surge barriers and homes for coastal communities.

Quality of life will be affected by increasing heat stress, water scarcity, severe weather events, and reduced availability of insurance for at-risk properties.

The Southeast "sunbelt" has attracted people, industry, and investment. The population of Florida has increased by 100 percent during the past three decades and growth rates in most other southeastern states were between 45 and 75 percent. The challenges associated with climate change will affect the quality of life for these residents and affect future population growth.

The full report, including references for the material above, can be found online at: www.globalchange.gov/usimpacts

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